

FINAL
Microbiological Sampling Report

for

National Oceanic & Atmospheric Administration

Samplings Conducted on the Sixth and Seventh Floors
of Building SSMC-3
On February 24, 2000

Interagency Agreement #: D8H00CO31200
Task: 9903

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Prepared by
US Public Health Service
Division of Federal Occupational Health
Bethesda Central Office

Executive Summary

At the request of the National Oceanic & Atmospheric Administration (NOAA), Federal Occupational Health (FOH) conducted a microbiological sampling in rooms 7316, 7331, 7514, and 7749 of Building SSMC-3, located at 1315 East-West Highway, Silver Spring, Maryland. Sampling was conducted in February 24, 2000. Andersen[®] air, swab, contact plate, and vacuum dust samples were collected from these rooms and an indoor reference room 6112. Air samples were also collected from outdoors.

Findings are as follows:

- Due to winter season, airborne fungal levels were low. Indoor airborne fungal levels, by Andersen sampling, were lower than those of outdoors.
- *Stachybotrys chartarum* was not detected from any air, wipe, and contact plate samples collected.
- In general, fungal burden on vertical surfaces was lower than that of horizontal surfaces.
- Very low fungal burden was detected from wipe samples collected from surfaces of supply diffusers and return troughers in light fixture.
- Results from analysis of two bulk samples collected from supply registers did not reveal fungal proliferation on these materials.
- Fungal levels in plenum dust of these rooms were at 10^3 - 10^4 CFU/g of fine dust levels. *Penicillium* and *Aspergillus* were the predominant fungal genera recovered from plenum dust samples. *Stachybotrys chartarum* was detected from plenum dust samples collected from rooms 7331 and 7316.
- Fungal levels in carpet and furniture dust of these rooms were at 10^3 - 10^4 CFU/g of fine dust levels. *Cladosporium* and *Alternaria* were the predominant fungi recovered. *Stachybotrys chartarum* was not detected from these samples.

INTRODUCTION

At the request of the National Oceanic & Atmospheric Administration (NOAA), Federal Occupational Health (FOH) conducted a microbiological sampling in rooms 7316, 7331, 7514 and 7749 of Building SSMC-3, located at 1315 East-West Highway, Silver Spring, Maryland. Sampling was conducted in February 24, 2000. Andersen's air, swab, contact plate, and vacuum dust samples were collected from these rooms and an indoor reference room 6112. Air samples were also collected from outdoors.

EVALUATION METHODOLOGY

Air Samples

Various types of samples were collected from these rooms on February 24, 2000. Andersen's air samples were collected from each room using Andersen's N-6 samplers at a flow rate of 28.3 L/min. Indoor air samples were collected for 3 minutes and outdoor samples were collected for both one and three minutes. Two percent (2 %) malt extract agar (MEA) and cellulose Czapek agar (CCA) was used to recover general fungi and cellulose-loving fungi, respectively. Outdoor air samples were collected near the entrance of the building. Temperature and relative humidity measurements were collected from each air sampling location by a battery operated, direct readout Hygroskop's meter.

Contact Plate Samples

To determine fungal burden on horizontal and vertical surfaces of these rooms, eight contact plate samples were collected from each room. Samples were collected from randomly selected horizontal and vertical surfaces. Sampling was

conducted by pressing the MEA-filled Rodac[®] plate against the surface of interest for five seconds. A total of 40 contact plate samples were collected.

Wipe and Bulk Samples

Swab samples were collected from surfaces of each supply diffusers and return troughers in each room. They were collected by wiping a known area of surface with a sterile cotton swab (Culturette[®]) wetted with holding media. Approximately 5 in² area was wiped for return trougher and 4 in² for supply diffusers. The swab was then placed directly into its holder. Each holder was labeled with an identifiable number. A total of 20 wipe samples were collected from these rooms.

Two bulk materials (a piece of brown paper and fiberglass insulation material) caught in the supply registers were collected while opening the supply registers for wipe sampling. These samples were collected for fungal analyses.

Vacuum Dust Samples

Dust accumulated on carpeting, chairs and fabric system furniture, and the plenum were collected with a High Efficiency Particulate Air (HEPA) vacuum attached with a special “sock” device. For each carpet sample, a 3-ft by 3-ft area was vacuumed for at least five minutes. Total surface areas of 9 ft² were vacuumed from system furniture and chairs, and composite as one sample. Dust accumulated above the ceiling plenum was also vacuumed and composite as one sample. One carpet sample, one composite furniture sample, and one composite plenum sample were collected from each room.

All samples collected were sent for next morning delivery to FOH’s Environmental Microbiology Laboratory (EML) in Philadelphia, Pennsylvania for analysis.

Laboratory Procedures

Upon receipt, all Andersen[®] air and contact plate samples were incubated in a 25°C incubator. Each swab sample was suspended in sterile distilled water, diluted serially, and inoculated onto agar plates. Both MEA and CCA were used for retrieving fungi. At least three dilution series were used for each sample. Each bulk sample was weighed and followed the aforementioned dilution plating. Each vacuum dust sample was sieved through a 250 mm sieve. The fine dust (< 250 mm) retrieved was then weighed and followed the dilution plating for fungal analysis.

All plates were incubated in a 25°C incubator. They were examined every other day for up to 10 days to ensure the full recovery of fungi. Fungal identification was based on colony morphology, spores and conidia formation. Total fungal colonies formed on each MEA plate and *Stachybotrys chartarum* on CCA plates were counted and recorded. Fungal levels in samples were presented as colony forming units (CFUs) per measuring unit. For example, CFU/m³ for Andersen[®] air samples, CFU/in² for wipe samples, CFU/plate for contact plate samples, and CFU/g of fine dust for vacuum dust samples.

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RESULTS AND DISCUSSION

Temperature and Relative Humidity

Indoor temperature and relative humidity measurements ranged from 74.2°F to 76.4°F, and 22.6% – 24.9%, respectively (Table 1). Outdoors temperature reading was lower, but with a higher relative humidity.

Microbiological Analyses Results

All laboratory analytical reports from FOH's EML are presented in Attachment A in a laboratory report #NOAA-00-35R.

Andersen Air Samples

Indoor airborne fungal levels were very low, from below the detection limits of 12 CFU/m³ to 24 CFU/m³ (Table 1). Outdoor airborne fungal levels were higher than those of indoors (Table 1). *Cladosporium* dominated outdoor fungal flora, followed by Basidiomycetes, *Aureobasidium*, *Alternaria*, and *Penicillium*. Fungi detected indoors were *Penicillium* and Basidiomycetes. *Stachybotrys chartarum* was not detected from these samples.

Table 1. Temperature and relative humidity measurements and airborne fungal levels at different rooms of the 6th and 7th floors in SSMC-3 on February 24, 2000.

Rooms	6112	7316	7331	7514	7749	Outdoors
Parameters						
Temperature						62.1*
(°F)	75.2	76.4	74.7	74.2	74.4	61.9
Relative Humidity						32.1*
(%)	24.9	22.6	23.5	24.2	24.6	31.7
Airborne Fungal Levels						636*
(CFU/m ³)	24	12	< 12	12	12	177

* Two samples were collected from outdoors.

Wipe and Bulk Samples

Most (15 out of 20) samples collected from surfaces of supply diffusers and return troughers in light fixtures were below the detection limits (BDL) (2 CFU/in² for supply diffuser and 3 CFU/in² for return trougher). The highest fungal level (590 CFU/in²) were detected from an exhaust fan at room 7514 (sample #W08). *Aureobasidium* dominated this sample, followed by *Penicillium*. The fungal level in a return vent at room 7449 was 152 CFU/in², with *Aureobasidium* as the

predominant fungal genus (sample #W01). All other samples showed very low fungal levels (2 – 3 CFU CFU/in²).

Two bulk materials (a brown piece of paper and fiberglass insulation material) caught in the supply registers were collected while opening the supply registers for wipe sampling. Results from fungal analyses did not reveal fungal proliferation on these materials (samples #B1 – B2). *Stachybotrys chartarum* was not detected from any wipe or bulk samples collected.

Contact Plate Samples

In general, higher fungal levels were detected from the horizontal surfaces than vertical surfaces (Table 2). Most samples (15 of 20) collected from vertical surfaces did not show fungal growth. Fungal levels on vertical surfaces ranged from BDL of 1 CFU/plate to 1 CFU/plate. Six of 20 samples collected from horizontal surfaces did not show fungal growth. Fungal levels on horizontal surfaces ranging from BDL of 1 CFU/plate to 26 CFU/plate. In general, *Cladosporium* was the predominant fungal genus recovered, followed by *Penicillium*.

Higher fungal levels (18 - 26 CFU/plate) were detected from rooms 7514 and 6112 (samples #3-7514-0224-CP1, #3-7514-0224-CP3, #3-6112-0224-CP1, and #3-6112-0224-CP2) with a diverse fungal population detected. *Penicillium* and *Aspergillus* were the predominant fungi detected from these samples.

Table 2. Fungal levels (CFU/plate) on horizontal and vertical surfaces of different rooms at the 6th and 7th floors of SSMC-3, by contact plate sampling collected on February 24, 2000.

Rooms	6112	7316	7331	7514	7749
Horizontal Surfaces (CFU/plate)	2 – 19* (4**)	< 1 – 3 (4)	< 1 – 4 (4)	2 – 26 (4)	< 1 – 10 (4)
Vertical Surfaces (CFU/plate)	< 1 – 1 (4)	< 1 (4)	< 1 – 1 (4)	< 1 – 1 (4)	< 1 (4)

* Ranges. ** Total sample number.

Vacuum Dust Samples

Diverse fungal genera, such as *Cladosporium*, *Alternaria*, *Epicoccum*, *Penicillium*, *Aureobasidium*, *Aspergillus niger*, yeast, *Paecilomyces*, *Pithomyces*, *Trichoderma*, Ascomycetes, and Basidiomycetes were recovered from these dust samples.

Plenum Dust

Fungal levels in the fine dust collected from the plenum were at 10³ - 10⁴ CFU/g of fine dust levels (Table 3). *Penicillium* and *Aspergillus* were the predominant fungal genera detected from these samples. *Stachybotrys chartarum* was detected from rooms 7316 and 7331.

Carpet and Furniture Dust

Fungal levels in the fine dust in carpet and furniture of these rooms were at the levels of 10^3 - 10^4 CFU/g of fine dust (Table 3). Predominant fungi detected were *Cladosporium*, *Alternaria*, *Epicoccum*, and *Aureobasidium*. *Stachybotrys chartarum* was not detected from any samples (Table 3).

Table 3. Total fungal levels (CFU/g of fine dust) in fine dust collected from carpet, plenum, and furniture of rooms 6112, 7316, 7331, 7514, and 7749 of SSMC-3, by vacuum dust sampling, collected on February 24, 2000.

Rooms	6112	7316	7331	7514	7749
Parameters					
Plenum	29,600	14,800	7,525	9,200	22,574
(CFU/g of fine dust)	(-*)	(+)	(+)	(-)	(-)
Carpet	10,800	7,200	3,137	3,600	70,588
(CFU/g of fine dust)	(-)	(-)	(-)	(-)	(-)
Furniture	40,800	14,286	5,618	NA**	8,235
(CFU/g of fine dust)	(-)	(-)	(-)		(-)

* +: *Stachybotrys chartarum* was detected on MEA and/or CCA plates.

-: *Stachybotrys chartarum* was not detected on MEA and CCA plates.

** Sample was not collected due to insufficient fleecy surfaces.

CONCLUSIONS

- Due to winter season, airborne fungal levels were low. Indoor airborne fungal levels, by Andersen sampling, were lower than those of outdoors.
- *Stachybotrys chartarum* was not detected from any air, wipe, and contact plate samples collected.
- In general, fungal burden on vertical surfaces was lower than that of horizontal surfaces.
- Very low fungal burden was detected from wipe samples collected from surfaces of supply diffusers and return troughers in light fixture.
- Results from analysis of two bulk samples collected from supply registers did not reveal fungal proliferation on these materials.
- Fungal levels in plenum dust of these rooms were at 10^3 - 10^4 CFU/g of fine dust levels. *Penicillium* and *Aspergillus* were the predominant fungal genera recovered from plenum dust samples. *Stachybotrys chartarum* was detected from samples collected from rooms 7331 and 7316.
- Fungal levels in carpet and furniture dust of these rooms were at 10^3 - 10^4 CFU/g of fine dust levels. *Cladosporium* and *Alternaria* were the predominant fungi recovered. *Stachybotrys chartarum* was not detected from these samples.

RECOMMENDATIONS

- Conduct thorough cleaning of these rooms with HEPA vacuuming of furniture and carpeting and wet wiping of hard surfaces.
- Conduct any above ceiling plenum work after hours. Thoroughly HEPA vacuum the surrounding areas afterwards.
- Implement an emergency water intrusion protocol for this building to adequately manage any unexpected water intrusion in order to prevent fungal proliferation.

ATTACHMENT A

USPHS DFOH ENVIRONMENTAL MICROBIOLOGY LABORATORY, PHILADELPHIA, PA

LABORATORY REPORT #NOAA-00-35R

Client agency: National Oceanic and Atmospheric Administration, Silver Spring, MD

POIS#/task #: D8H00CO31200 / 9903

Sampling date: 2/24/00

Dates of inoculation: 2/24/00 (airs and contact plates), 2/25/00 (wipes), 2/28/00, and 2/29/00 (dust)

General location: SSMC-3, Silver Spring, MD

Specific location: 7th floor

Sampling techniques: Air (Andersen N-6 sampler), contact plate, wipe, and vacuum dust samplings

Medium used: Malt extract agar (MEA) and cellulose Czapek agar (CCA) for fungi

Samples submitted by: L. Hung, R. Pickett, and C. Preto

Date characterization completed: 3/9/00

(A) Air samples on MEA and CCA plates

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C
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3-7749-0224A1, 7 th floor, room 7749, center A2	84.9	1. Basidiomycetes (1*)	No
		CFU/m ³ = 12	
3-7514-0224A1, 7 th floor, room 7514, center A2	84.9	1. Basidiomycetes (1)	No
		CFU/m ³ = 12	
3-7331-0224A1, 7 th floor, room 7331, inner cubicle	84.9	No fungal growth	No
		CFU/m ³ < 12	
3-7316-0224A1, 7 th floor, room 7316, center A2	84.9	1. <i>Penicillium</i> (1)	No
		CFU/m ³ = 12	
3-6112-0224A1, 6 th floor, room 6112, center A2	84.9	1. Basidiomycetes (2)	No
		CFU/m ³ = 24	

Sample ID	Sampling Location	Air Volume (L)	Fungi on MEA @ 25° C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C
3-Outdoors-0224-1	Outside bldg. 3	28.3	1. <i>Cladosporium</i> (8) 2. <i>Aspergillus sp.</i> (2) 3. <i>Aureobasidium</i> (2) 4. <i>Alternaria</i> (1) 5. <i>Aspergillus niger</i> ** (1) 6. <i>Penicillium</i> (1) 7. Basidiomycetes (3)	No
3-Outdoors-0224-3	Outside bldg. 3	84.9	CFU/m ³ = 636 1. <i>Cladosporium</i> (8) 2. <i>Penicillium</i> (2) 3. <i>Alternaria</i> (1) 4. <i>Aureobasidium</i> (1) 5. <i>Paecilomyces</i> (1) 6. Basidiomycetes (2)	No
FB	Field blank	NA [#]	CFU/m ³ = 177 No fungal growth	No
SB	Shipping blank	NA	No fungal growth	No

(B) Contact plate samples on MEA plates

Sample ID	Sampling Location	Fungi detected on MEA @ 25° C
3-7749-0224-CP1	7 th floor, room 7749, horizontal, top of computer	<ol style="list-style-type: none"> 1. <i>Penicillium</i> (5) 2. <i>Alternaria</i> (2) 3. <i>Cladosporium</i> (2) 4. <i>Paecilomyces</i> (1) <p>CFU/plate = 10</p>

Sample ID	Sampling Location	Fungi detected on MEA @ 25° C
3-7749-0224-CP2	7 th floor, room 7749, horizontal, top of desk adjacent to computer	<p>No fungal growth</p> <p>CFU/plate < 1</p>
3-7749-0224-CP3	7 th floor, room 7749, horizontal, top of file cabinet of system furniture, left	<p>No fungal growth</p> <p>CFU/plate < 1</p>
3-7749-0224-CP4	7 th floor, room 7749, horizontal, top of file cabinet of system furniture, right	<ol style="list-style-type: none"> 1. <i>Penicillium</i> (2) <p>CFU/plate = 2</p>
3-7749-0224-CP5	7 th floor, room 7749, vertical, side of file cabinet	<p>No fungal growth</p> <p>CFU/plate < 1</p>
3-7749-0224-CP6	7 th floor, room 7749, vertical, side of shelf	<p>No fungal growth</p> <p>CFU/plate < 1</p>
3-7749-0224-CP7	7 th floor, room 7749, vertical, side of file cabinet	<p>No fungal growth</p> <p>CFU/plate < 1</p>
3-7749-0224-CP8	7 th floor, room 7749, vertical, side of computer	<p>No fungal growth</p> <p>CFU/plate < 1</p>

3-7514-0224-CP1 7th floor, room 7514, horizontal, top of table

1. ***Penicillium* (7)**
2. *Alternaria* (4)
3. *Aspergillus niger*** (4)
4. *Epicoccum* (4)
5. *Ulocladium* (4)
6. *Aureobasidium* (2)
7. *Pithomyces* (1)

CFU/plate = 26

3-7514-0224-CP2 7th floor, room 7514, horizontal, ledge of marker board

1. ***Aspergillus sp.* (1)**
2. *Aureobasidium* (1)
3. *Cladosporium* (1)

CFU/plate = 3

Sample ID	Sampling Location	Fungi detected on MEA @ 25° C
3-7514-0224-CP3	7 th floor, room 7514, horizontal, metal piece at the back of chair	<ol style="list-style-type: none"> 1. <i>Cladosporium</i> (7) 2. <i>Epicoccum</i> (6) 3. <i>Penicillium</i> (4) 4. <i>Alternaria</i> (2) 5. <i>Ulocladium</i> (2) 6. <i>Paecilomyces</i> (1) <p>CFU/plate = 22</p>
3-7514-0224-CP4	7 th floor, room 7514, horizontal, bottom of marker board	<ol style="list-style-type: none"> 1. <i>Aureobasidium</i> (1) 2. Basidiomycetes (1) <p>CFU/plate = 2</p>
3-7514-0224-CP5	7 th floor, room 7514, vertical, wall behind marker board	<ol style="list-style-type: none"> 1. <i>Cladosporium</i> (1) <p>CFU/plate = 1</p>
3-7514-0224-CP6	7 th floor, room 7514, vertical, wall near back door	<ol style="list-style-type: none"> 1. <i>Penicillium</i> (1) <p>CFU/plate = 1</p>
3-7514-0224-CP7	7 th floor, room 7514, vertical, wall near outlet	No fungal growth
3-7514-0224-CP8	7 th floor, room 7514, vertical, wall near door	<p>CFU/plate < 1</p> <p>No fungal growth</p> <p>CFU/plate < 1</p>

3-7331-0224-CP1	7 th floor, room 7331, horizontal, top of file	1. <i>Aspergillus versicolor</i> *** (1) 2. <i>Chaetomium</i> (1) 3. <i>Cladosporium</i> (1) 4. <i>Paecilomyces</i> (1) CFU/plate = 4
3-7331-0224-CP2	7 th floor, room 7331, horizontal, top of system furniture	1. <i>Cladosporium</i> (2) CFU/plate = 2 No fungal growth
3-7331-0224-CP3	7 th floor, room 7331, horizontal, top of computer	CFU/plate < 1
3-7331-0224-CP4	7 th floor, room 7331, horizontal, on desk	1. <i>Epicoccum</i> (1) CFU/plate = 1

Sample ID	Sampling Location	Fungi detected on MEA @ 25° C
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3-7331-0224-CP5	7 th floor, room 7331, vertical, edge of system furniture	No fungal growth CFU/plate < 1
3-7331-0224-CP6	7 th floor, room 7331, vertical, front of drawer	No fungal growth CFU/plate < 1
3-7331-0224-CP7	7 th floor, room 7331, vertical, leg of desk	1. <i>Penicillium</i> (1) CFU/plate = 1 No fungal growth
3-7331-0224-CP8	7 th floor, room 7331, vertical, side of computer	CFU/plate < 1
3-7316-0224-CP1	7 th floor, room 7316, horizontal, shelf near door	No fungal growth CFU/plate < 1
3-7316-0224-CP2	7 th floor, room 7316, horizontal, top of file cabinet of system furniture	No fungal growth CFU/plate < 1
3-7316-0224-CP3	7 th floor, room 7316, horizontal, shelf near plant	1. <i>Cladosporium</i> (1) 2. <i>Epicoccum</i> (1) 3. Basidiomycetes (1) CFU/plate = 3 No fungal growth
3-7316-0224-CP4	7 th floor, room 7316, horizontal, top of desk	CFU/plate < 1
3-7316-0224-CP5	7 th floor, room 7316, vertical, side of shelf	No fungal growth CFU/plate < 1
3-7316-0224-CP6	7 th floor, room 7316, vertical, front of drawer on left	No fungal growth CFU/plate < 1

3-7316-0224-CP7	7 th floor, room 7316, vertical, front of drawer on right	No fungal growth
3-7316-0224-CP8	7 th floor, room 7316, vertical, side of shelf	CFU/plate < 1 No fungal growth CFU/plate < 1

Sample ID	Sampling Location	Fungi detected on MEA @ 25° C
3-6112-0224-CP1	6 th floor, room 6112, horizontal, top of file cabinet	1. <i>Cladosporium</i> (1) 2. Basidiomycetes (1) CFU/plate = 2
3-6112-0224-CP2	6 th floor, room 6112, horizontal, top of table with plant	1. <i>Penicillium</i> (8) 2. <i>Cladosporium</i> (7) 3. <i>Aspergillus sp.</i> (3) CFU/plate = 18
3-6112-0224-CP3	6 th floor, room 6112, horizontal, windowsill	1. <i>Penicillium</i> (8) 2. <i>Cladosporium</i> (7) 3. <i>Alternaria</i> (1) 4. <i>Aspergillus niger</i> ** (1) 5. <i>Aspergillus sp.</i> (1) 6. <i>Epicoccum</i> (1) CFU/plate = 19
3-6112-0224-CP4	6 th floor, room 6112, horizontal, top of desk	1. <i>Cladosporium</i> (4) CFU/plate = 4
3-6112-0224-CP5	6 th floor, room 6112, vertical, column	No fungal growth CFU/plate < 1
3-6112-0224-CP6	6 th floor, room 6112, vertical, side of grey file cabinet	No fungal growth CFU/plate < 1
3-6112-0224-CP7	6 th floor, room 6112, vertical, wall above plant	1. <i>Alternaria</i> (1) CFU/plate = 1
3-6112-0224-CP8	6 th floor, room 6112, vertical, side of computer	1. <i>Penicillium</i> (1) CFU/plate = 1
FB	Field blank	No fungal growth

(C) Wipe samples on MEA and CCA plates

FOH ID	Sample ID	Sampling Location	Area (in ²)	Dilution factor	Fungi on MEA @ 25°C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25°C
Blank	Blank	Blank	NA	10X-MEA 10X-CCA	No fungal growth	No
W01	3-7749-0224R1	7 th floor, room 7749, return	5	40X-MEA 10X-CCA	1. <i>Aureobasidium</i> (15) 2. <i>Alternaria</i> (1) 3. <i>Aspergillus sp.</i> (1) 4. <i>Epicoccum</i> (1) 5. <i>Penicillium</i> (1) CFU/in ² = 152	No
W02	3-7749-0224R2	7 th floor, room 7749, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No
W03	3-7749-0224S1	7 th floor, room 7749, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W04	3-7514-0224S1	7 th floor, room 7514, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W05	3-7514-0224S2	7 th floor, room 7514, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W06	3-7514-0224R1	7 th floor, room 7514, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No
W07	3-7514-0224R2	7 th floor, room 7514, return	5	10X-MEA 10X-CCA	1. <i>Aspergillus niger</i> ** (1) CFU/in ² = 2	No
W08	3-7514-0224EF1	7 th floor, room 7514, exhaust fan	4	40X-MEA 10X-CCA	1. <i>Aureobasidium</i> (48) 2. <i>Penicillium</i> (10) 3. <i>Epicoccum</i> (1) CFU/in ² = 590	No

FOH ID	Sample ID	Sampling Location	Area (in ²)	Dilution factor	Fungi on MEA @ 25°C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25°C
W09	3-7331-0224R1	7 th floor, room 7331, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No
W10	3-7331-0224R2	7 th floor, room 7331, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No

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W11	3-7331-0224S1	7 th floor, room 7331, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W12	3-7316-0224R1	7 th floor, room 7316, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No
W13	3-7316-0224R2	7 th floor, room 7316, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No
W14	3-7316-0224S1	7 th floor, room 7316, supply	4	10X-MEA 10X-CCA	1. <i>Chaetomium</i> (1) CFU/in ² = 3	No
W15	3-6112-0224S1	6 th floor, room 6112, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W16	3-6112-0224S2	6 th floor, room 6112, supply	4	10X-MEA 10X-CCA	1. <i>Cladosporium</i> (1) CFU/in ² = 3	No
W17	3-6112-0224S3	6 th floor, room 6112, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W18	3-6112-0224S4	6 th floor, room 6112, supply	4	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 3	No
W19	3-6112-0224R1	6 th floor, room 6112, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No
W20	3-6112-0224R2	6 th floor, room 6112, return	5	10X-MEA 10X-CCA	No fungal growth CFU/in ² < 2	No

(D) Vacuum dust samples on MEA and CCA plates

FOH ID	Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25°C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C
V01 2/28/00	4-7749-0224V1	7 th floor, room 7749, carpet	0.102	400X-MEA 10X-CCA	1. <i>Aureobasidium</i> (7) 2. <i>Paecilomyces</i> (4) 3. <i>Alternaria</i> (1) 4. <i>Cladosporium</i> (1) 5. <i>Penicillium</i> (1) 6. <i>Ulocladium</i> (1) 7. yeast (3) CFU/g = 7.1 x 10 ⁴	No

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V02 2/28/00	4-7749-0224V2	7 th floor, room 7749, furniture	0.034 ^{##}	40X-MEA 10X-CCA	1. <i>Alternaria</i> (4) 2. <i>Cladosporium</i> (2) 3. <i>Epicoccum</i> (2) 4. <i>Aspergillus sp.</i> (1) 5. Ascomycetes (1) 6. yeast (4) CFU/g = 8,235	No
V04 2/29/00	4-7749-0224V3	7 th floor, room 7749, vacuum plenum dust	0.101	40X-MEA 10X-CCA	1. <i>Penicillium</i> (28) 2. <i>Aspergillus niger</i> ** (11) 3. <i>Cladosporium</i> (7) 4. <i>Alternaria</i> (3) 5. <i>Aspergillus sp.</i> (3) 6. <i>Epicoccum</i> (2) 7. <i>Ulocladium</i> (2) 8. <i>Aureobasidium</i> (1) CFU/g = 2.3 x 10⁴	No

FOH ID	Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25°C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C
V03 2/28/00	4-7514-0224V1	7 th floor, room 7514, carpet	0.100	40X-MEA 10X-CCA	1. <i>Alternaria</i> (3) 2. <i>Cladosporium</i> (3) 3. <i>Paecilomyces</i> (1) 4. yeast (2) CFU/g = 3,600	No

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V03 2/29/00	4-7514-0224V3	7 th floor, room 7514, vacuum plenum dust	0.100	40X-MEA 10X-CCA	1. <i>Penicillium</i> (10) 2. <i>Aspergillus niger</i> ** (6) 3. <i>Cladosporium</i> (3) 4. <i>Ulocladium</i> (2) 5. <i>Alternaria</i> (1) 6. Basidiomycetes (1) CFU/g = 9,200	No
V04 2/28/00	4-7331-0224V1	7 th floor, room 7331, carpet	0.102	40X-MEA 10X-CCA	1. <i>Cladosporium</i> (3) 2. <i>Aspergillus sp.</i> (2) 3. <i>Alternaria</i> (1) 4. <i>Chaetomium</i> (1) 5. Ascomycetes (1) CFU/g = 3,137	No
V05 2/28/00	4-7331-0224V2	7 th floor, room 7331, furniture	0.089 ^{##}	40X-MEA 10X-CCA	1. <i>Cladosporium</i> (8) 2. <i>Aureobasidium</i> (7) 3. <i>Alternaria</i> (3) 4. <i>Epicoccum</i> (2) 5. <i>Aspergillus niger</i> ** (1) 6. Ascomycetes (1) 7. Basidiomycetes (1) 8. yeast (2) CFU/g = 5,618	No

FOH ID	Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25° C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C

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V02 2/29/00	4-7331-0224V3	7 th floor, room 7331, vacuum plenum dust	0.101	40X-MEA 40X-CCA	1. <i>Penicillium</i> (9) 2. <i>Alternaria</i> (3) 3. <i>Aspergillus niger</i> ** (2) 4. <i>Cladosporium</i> (2) 5. <i>Epicoccum</i> (1) 6. yeast (2) CFU/g = 7,525	Yes (1) CFU/g = 396
V06 2/28/00	4-7316-0224V1	7 th floor, room 7316, carpet	0.100	40X-MEA 10X-CCA	1. <i>Aureobasidium</i> (7) 2. <i>Alternaria</i> (4) 3. <i>Cladosporium</i> (3) 4. <i>Epicoccum</i> (1) 5. yeast (3) CFU/g = 7,200	No
V07 2/28/00	4-7316-0224V2	7 th floor, room 7316, furniture	0.070 ^{##}	40X-MEA 10X-CCA	1. <i>Alternaria</i> (20) 2. <i>Cladosporium</i> (10) 3. <i>Aureobasidium</i> (5) 4. <i>Epicoccum</i> (3) 5. <i>Aspergillus niger</i> ** (1) 6. <i>Nigrospora</i> (1) 7. <i>Penicillium</i> (1) 8. Ascomycetes (9) CFU/g = 1.4 x 10⁴	No

FOH ID	Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25° C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C

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V01 2/29/00	4-7316-0224V3	7 th floor, room 7316, vacuum plenum dust	0.100	40X-MEA 40X-CCA	1. <i>Penicillium</i> (13) 2. <i>Cladosporium</i> (11) 3. <i>Alternaria</i> (7) 4. <i>Aspergillus niger</i> ** (3) 5. <i>Aureobasidium</i> (1) 6. <i>Bipolaris</i> (1) 7. <i>Pithomyces</i> (1) CFU/g = 1.5×10^4	Yes (1) CFU/g = 400
V08 2/28/00	4-6112-0224V1	6 th floor, room 6112, carpet	0.100	40X-MEA 10X-CCA	1. <i>Cladosporium</i> (10) 2. <i>Penicillium</i> (10) 3. <i>Epicoccum</i> (2) 4. <i>Rhizopus</i> (2) 5. <i>Nigrospora</i> (1) 6. <i>Paecilomyces</i> (1) 7. Ascomycetes (1) CFU/g = 1.1×10^4	No
V09 2/28/00	4-6112-0224V2	6 th floor, room 6112, furniture	0.100 ^{##}	40X-MEA 10X-CCA	1. <i>Aureobasidium</i> (18) 2. <i>Epicoccum</i> (13) 3. <i>Alternaria</i> (10) 4. <i>Nigrospora</i> (4) 5. <i>Cladosporium</i> (3) 6. <i>Penicillium</i> (1) 7. <i>Rhizopus</i> (1) 8. Basidiomycetes (1) CFU/g = 1.0×10^4	No

FOH ID	Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25° C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C

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V05 2/29/00	4-6112-0224V3	6 th floor, room 6112, vacuum plenum dust	0.100	40X-MEA 10X-CCA	1. <i>Cladosporium</i> (26) 2. <i>Penicillium</i> (25) 3. <i>Aspergillus niger</i> ** (8) 4. <i>Alternaria</i> (5) 5. <i>Aureobasidium</i> (4) 6. <i>Aspergillus flavus</i> *** (2) 7. <i>Aspergillus sp.</i> (2) 8. <i>Epicoccum</i> (1) 9. <i>Fusarium</i> (1) CFU/g = 3.0×10^4	No
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(E) Bulk sample on MEA and CCA plates by dilution plating

Sample ID	Sampling Location	Weight (g)	Dilution factor	Fungi on MEA @ 25°C	Presence of <i>Stachybotrys chartarum</i> *** on CCA @ 25° C
B1	7 th floor, room 7316, paper from supply register	0.934	10X-MEA 10X-CCA	No fungal growth CFU/g < 11	No
B2	7 th floor, room 7514, bulk from supply 2	0.109	10X-MEA 10X-CCA	1. <i>Cladosporium</i> (1) CFU/g = 92	No

(F) Bulk samples on MEA plates by direct plating

Sample ID	Sampling Location	Fungi detected on MEA @ 25°C
B1	7 th floor, room 7316, fiberglass insulation material from supply register	No fungal growth CFU/plate < 1

* Colony counts.

** Opportunistic fungi.

*** Toxigenic fungi.

Not applicable.

5ml of sterilized distilled water were added instead of 10ml.

Microbiological laboratory report for samples collected
from the sixth and seventh floors of SSMC-3, on February 24, 2000.